

GUJARAT TECHNOLOGICAL UNIVERSITY
BE – SEMESTER VIII– • EXAMINATION – SUMMER 2015

Subject Code: 181404**Date: 05/05/2015****Subject Name: Food Fermentation Technology****Time: 10.30am-01.00pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Define 'Del factor' and give it's mathematical derivation **07**
(b) Write a detailed note on "Design and material of construction for fermenter" **07**
- Q.2** (a) Draw well labelled diagram of fermenter and enlist various requirements of industrial fermenter **07**
(b) Describe the process of calculation of 'del factor' by Richards graphical integration method **07**
- OR**
- (b) Write down important steps in commercial manufacture of beer. **07**
- Q.3** (a) Explain any two methods for determination of 'KLa' value **07**
(b) Describe various types of purification methods for industrial metabolites. **07**
- OR**
- Q.3** (a) Describe the process for industrial manufacture of wine **07**
(b) Explain how production of beta-galactosidase enzyme is regulated genetically? **07**
- Q.4** (a) Describe various types of impellers used in fermenter **07**
(b) What are different theories to explain the mechanism of enzyme- substrate interaction at active site? **07**
- OR**
- Q.4** (a) Explain the concept of 'Containment' in industrial fermentation processes and classification of process organism on the basis of containment. **07**
(b) Give criteria used for transfer of inoculum to fermentation medium and enlist different characteristics of inoculum **07**
- Q.5** (a) Write short notes on following **07**
1. Steam traps
2. Scale up of batch sterilization process
(b) Give mathematical derivation for thermal destruction of essential media components during sterilization. **07**
- OR**
- Q.5** (a) Describe various types of stirrer glands and bearing found in industrial fermenter. **07**
(b) Describe the calculation of holding time at constant temperature during sterilization and give advantages of batch and continuous sterilization. **07**
